CANTY'S GOAL IS TO PROVIDE EQUIPMENT TO ENHANCE PROCESS CONTROL AND YIELD. WE ACCOMPLISH THIS BY DESIGNING, MANUFACTURING AND SERVICING THE FINEST EQUIPMENT IN THE WORLD.

Some Of Our Valued Customers

| Dow | DuPont | Eastman Chemical | Eli Lilly | ExxonMobil | PPG | Procter & Gamble | Rohm | SABIC
| --- | --- | --- | --- | --- | --- | --- | --- | ---
| Lonza | Merck | National Starch | Nestlé | Niren | Novartis | Nucor Steel | Owens Illinois | Pfizer
| BASF | Bayer | BioNTech | Johnson & Johnson | Kraft | Nalco | US Steel |

Industries

- Abrasives
- Aerospace
- Agriculture
- Biomedical and Biotechnology
- Chemicals
- Cements
- Ceramics
- Food, Beverage and Brewery
- Glass
- Mining
- Oil, Gas and Coal
- Petroleum and Petrochemical
- Pharmaceutical
- Pulp and Paper
- Steel and Metals
- Stones and Aggregate
- Water and Waste

AND YOU!!!

CANTY

J.M. Canty Inc.
6100 Donner Road
Buffalo, NY 14227
Phone: (716) 625-4227
Fax: (716) 625-4228
Email: sales@jmcanty.com

www.jmcanty.com

J.M. Canty International Ltd.
Ballycoolin Business Park
Blanchardstown
Dublin 15, Ireland
Phone: +353 (01) 882-9621
Fax: +353 (01) 882-9622
Email: sales.ie@jmcanty.com

vision
without
limits
CANTY LIGHTING

FIBER OPTIC BUNDLE LIGHTING

CANTY provides a combined light and sight glass to optimize viewing and minimize total package cost. Illuminate through an existing sight glass or a newly installed FusiView™.

CANTY 24” and longer bundle models mount remotely from the sight glass with an optional bracket for increased accessibility. Illustration above includes optional CANTY QuickFillView™ Port.

- High Intensity Lighting
- NEMA 4, IP66, Explosion proof, Flame proof models
- Fused glass seal provides a safe, reliable, hermetic seal between electronics and the process area.

CANTY 12” bundle models mount directly to a sight glass with an optional bracket.
- View and illuminate through one nozzle
- Maximum illumination
- Cool light output - eliminates product bake-on
- 50W & 80W models

CANTY LIGHT BEAM OPTIONS:
- 30° Normal Beam
- 90° Wide Beam

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MOONING OPTIONS
- Flanged
- NPT
- Tri-Clamp®
- NA-Connect®

APPLICATIONS
- Process vessels
- Solid material hoppers
- Spray dryers
- Sterilizers
- Filters
- Crystallizers
- Centrifuges

3-D RockSizer™
- 2.5 mm - 230 mm Options
- For Aggregate Applications
- WP, IP, Explosion Proof or Flame Proof Environments

The RockSizer™ Advantages:
- Designed to withstand the harsh environments typical of the mining industry
- Rugged, skid mount style frame
- 3D particle size and shape analysis
- Real-time, On-line particle size analysis
- Dual uniform backlighting for true shape illumination
- Easy, rapid system configuration

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SolidSizer™ Applications
- Food - Coffee, Cereals, Candies
- Detergents
- Pharmaceutical - Powders, Capsules
- Mining - Aggregates, Crusher Control
- Iron Ore Pellets
- Wood chips
- Plastics
- Agricultural Products
- Many, Many More!

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FOOD
- Particle Size
- Color and Size
- Volume Flow
- Automate Your Process
- Visual Verification

System Capability
- Particle Size
- Color and Size
- Volume Flow
- Automate Your Process
- Visual Verification

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- Volume Flow
- Automate Your Process
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Beverage
- Coffee
- Liquid Sugar
- Oil Cooking
- Gels or Pastes
- Creams
- Energy Drinks
- Beer/Spirits/Wine
- Milk

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- Coffee
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CANTY Laboratory SoduSizers™ are vision-based analyzers for dry particle size measurement and speck detection in a laboratory environment. The SoduSizers™ include a camera with shutter speed control, a variable magnification lens, a high output light source with a uniform light field to display silhouette images of opaque particles and an enclosed vibratory feeder to present sample material to the camera / light in free fall. The sample images are digitally analyzed to obtain particle characteristics.

The LabPlus Solidsizer™ is a fully automated particle characteristic analyzer and is ideal for any laboratory application.

The SoduSizer™ TS is a fully automated, particle characteristic and color analyzer. All functions are computer controlled, with an easy to use, comprehensive analysis and control software package. The SoduSizer™ TS is ideal for any laboratory application.

The Lab Colormeter Saybolt, (R,C,B), CIE Options

An excellent laboratory color analyzer, the Lab Colormeter provides manual control of all parameters required to accurately and repeatedly measure color characteristics.

The CANTY PweVisu™ is a sanitary / hygienic fiber optic light and fused sight glass combination. The PweVisu™ combines the maximum viewing area through a CANTY FosVisu™ sanitary sight glass with a high output sanitary Canty light, providing the best view possible while minimizing space needed and number of connections.

The TriPort™ Hinged Sanitary Light and Sight Glass System combines the PweVisu™ with a unique hinged connection which allows the user to easily and quickly unclamp and pivot the sight glass and light combination away from the female in just seconds. The TriPort™ system remains supported by the female and can quickly pivot back into place.

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CANTY COLD LIGHT

HYL 52 Lighting System

CIP/SIP Process Compatible

• Sanitary Areas
• Sterile Process Applications
• Food Applications
• Fermentors
• Biotech Applications
• Pharmaceutical
• Pharmaceuticals
• Cosmetics
• Biopharma
• Mining/crushing
• Fertilizers/detergents
• Plastics
• Solids
• Water treatment
• Chemical processing

The CANTY HYL S2 and HYL 82 series lighting systems are sanitary / hygienic lights used in the BioTech industry. They provide a high intensity, true white light for optimal illumination while adding no heat to the process.

All CANTY lights feature a hermetic, fused glass, high pressure / temperature seal to completely seal the light from the process. The 316L design and variety of mounting systems are sanitary / hygienic lights used in the BioTech industry. They provide a high intensity, true white light for optimal illumination while adding no heat to the process.
CANTY FuseView™

Industrial Sight Glasses and Sight Flows

THE ENGINEERED ADVANTAGE

CANTY FuseView™ sight glasses have been engineered to meet all of your process and safety needs. All standard FuseView™ feature Factory Mutual approval and are designed and tested to ensure the safest product available. CANTY can provide certification of material and testing if required, following ASME code and TÜV requirements for process vessels.

Our unique fused glass windows far exceed all conventional tempered glass windows in safety and performance. CANTY windows can be easily removed for cleaning and do not have to be discarded as do traditional tempered sight glass windows.

FuseView™ ANSI / DIN

CANTY FuseView™ flanged sight glasses are ideal for new or retrofit applications and are available in ANSI and DIN as well as almost any custom size. FuseView™ models feature the largest viewing area of any fused sight glass on the market today.

FuseView™ HIGH TEMP

CANTY FuseView™ High Temp sight glasses include dual FuseView™ sight glasses for extreme high temperature applications. The dual sight glass package insulates the inner FuseView™ sight glass against extreme thermal shock.

Glass Wetted FuseView™

Glass wetted FuseView™ sight glasses are designed for glass-lined reactors where only glass is allowed in contact with the product. The large diameter fused glass seal allows the gasket to seal on glass only, not the metal. Perfect for glass wetted, C2000 and exotic material reactors.

FuseView™ HIGH TEMP

CANTY Quartz or Sapphire shields can be added to any FuseView™ ANSI / DIN sight glass for caustic service. Replaceable molecular quartz or sapphire shields are available when required due to process conditions.

CANTY SIGHT FLOWS

All CANTY sight flows come standard with FuseView™ sight glasses to provide the safest sight flow in the industry. Our sight flows have been designed to meet strict ASME code requirements and all units are hydro-tested to 150% of the maximum rated pressure.

F700 Series Flanged Connection

S100 Series Threaded Connection

JET SPRAY RINGS

CANTY Jet Spray Rings generate a high pressure vortex rinsing action to remove tough deposits from sight glasses, lights, and vision systems. The Jet Spray Ring may be used for constant or instantaneous cleaning.

JET SPRAY RING - U.S. SPACE PROGRAM ORIGIN

Inflow

In-Line Analyzer

At-Line Analyzer

Lab/Portable Analyzer

Normalized Flow Constant Cross-Sectional Area

• Detects Oil/Water/Sand/GAS
• 7 micron - 4.8 mm particle size options
• High throughput
• At pressure and Temperature Analysis
• Visual Verification
• FM, ATEX and Weatherproof approved models

CANTY ADvANTAGE

• Particle Size / Shape / Color
• Bubbles do not effect output
• No Buildup
• Continuous Real Time View
• Visual Verification
• Provides both a real-time, in-line measurement and a continuous real-time view of the product

JET SPRAY RING

CANTY, the Jet Spray Ring may be used for constant or instantaneous cleaning.
CANTY offers many systems for laboratory particle sizing analysis that have been engineered to provide the user a means by which a liquid is analyzed while under varying pressures, temperatures and flow rates. The MicroFlow™, MicroFlow™ with Pressure Pots and the Immersion Turbidity Analyzer offer sample or continuous, microscopic, non-destructive viewing. They provide particle size analysis on 1 micron and larger samples with two dimensional results when used in conjunction with CANTYVision™ software.

CANTY offers Liquid Analysis for
- Particle Size - Slurries - Suspensions
- Concentration Measurement
- Immersion Turbidity Analyzer
- Concentration down to the PPM / PPB level is accomplished by digitally analyzing the size and shape of the droplets or particles to calculate the volume.

MicroFlow™
- Variable magnification lens for analysis of different size samples
- A high output light source with uniform light field to display silhouette images of opaque particles and translucent particles.

MicroFlow™ with Pressure Pots
- FusView™ window is the product contact barrier
- Rated 150 PSI [10 bar] @ 500°F [260°C], Options through 6,000 PSI [400 bar]
- On-Line or LoFlow™ (remote control)

MACROFlow™
- Variable flow gap spacing to obtain optimal image for particle sizing
- Ability to view real-time data and images
- Store and recall images for further analysis

IMMERSION TURBIDITY ANALYZER
- System Capability:
  - Particle Size
  - Turbidity
  - Percent Solids
- Applications:
  - Hydrozizers
  - Transfer Boxes
  - Floatation Tanks

CANTY FuseView™ Sanitary Sight Glasses and Sight Flows
CANTY Sanitary FuseView™ sight glasses are fused, one-piece sight glasses, featuring a hermetic fused glass to metal seal. The CANTY high pressure, fused glass design requires no special gasketing or torque requirement. CANTY Sanitary sight glasses have been designed and tested to ensure the safest product available.

CANTY can provide certification of material and testing if required, following ASME code and TÜV requirements for process vessels.

Tri-CLAMP® FuseView™
- Tri-Clamp® FuseView™ sight glasses are available in full view and flush mount styles. The hermetic, sanitary design is ideal for sanitary applications. CANTY features the largest viewing area of any fused sight glass on the market today.

Aseptic NA-Connect® FuseView™
- Aseptic NA-Connect® FuseView™ sight glasses incorporate a thru hole bolt pattern in the sight glass, eliminating the need for a retaining flange. The low profile design and hermetic, fused seal provide a high strength, sanitary sight glass free of air pockets or pockets for material accumulation.

CANTY FuseView™ Sanitary Sight Glasses
- Sanitary Flange FuseView™ sight glasses incorporate a thru hole bolt pattern in the sight glass, eliminating the need for a retaining flange. The low profile design and hermetic, fused seal provide a high strength, sanitary sight glass free of air pockets or pockets for material accumulation.

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CANTY Sanitary Sight Glasses
- CANTY sanitary sight flows are designed with the same attention to safety as industrial units. They are available with Tri-Clamp®, butt weld, TS, or any available sanitary connection.

THE CANTY ADVANTAGE
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CANTY InFlow™ Particle Sizing
- Concentration down to the PPM / PPB level is accomplished by digitally analyzing the size and shape of the droplets or particles to calculate the volume.

CANTY InFlow™
- A high output light source with uniform light field to display silhouette images of opaque particles and translucent particles.

How it works!
To manufacture a FuseView™, we heat the glass to its molten point where it flows to the wall of the metal. At that point the glass fuses or bonds to the metal. Then we slowly cool the FuseView™ until the glass solidifies. The metal has a higher coefficient of expansion than the glass and the metal compresses on the glass. This squeezing prestresses the glass and puts it under radial compression. Glass is strong in compression but not in tension or shear. When the FuseView™ is pressurized the glass bends and relieves the compression and avoids tension. This is the same as is done in concrete - it is prestressed in compression in order to take bending.

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FuseView™ and the FuseView™ window is the product contact barrier
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- On-Line or LoFlow™ (remote control)

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**CANTY QuickPort™ Closures**

The CANTY QuickPort™ is a patented, safe, quick opening closure for process vessels. Originally used in the offshore diving industry as a transfer lock on decompression chambers, QuickPort™ are used with no additional interlock by the tank to be pressurized or evacuated. A pressure differential holds the door securely in place and no bolting is involved. Meets ASME code section VIII for quick opening closures. Optional positive interlocks for hazardous or lethal service are available.

The QuickPort™ features a hinged door or window that opens laterally to provide full port access. The closure consists of a pad and a retaining flange held apart by spacers, a floating seal ring and a door or sight glass. The spring force creates an air tight seal on the door as the door is pivoted into the closure the spring loaded seal ring is deflected back to allow the closure to fit tightly between the flanges. The spring force creates an air tight seal on the door face and allows the tank to be pressurized or evacuated.

**QuickPort™ APPLICATIONS**

- Powder Charging
- Sampling
- Pilot Plant Vessels

**QuickPort™ Hazop Options**

- Air Cylinder Locking Pin
- Spring Loaded Locking Pin
- Interlock Available For Hazardous Operations
- Not Needed For Pressure Safety
- Limit Switch

**How it Works!**

The zero leak design has been proven through a combination of air / liquid submergence testing. This cycles the QuickPort™ through external pressure, no pressure and ultra high internal pressure leak testing where a constant o-ring seal is maintained.

**CANTY Particle Sizing**

Fermentation

Canty dynamic image processing performs several valuable functions in fermentation. The system captures images for cells down to .7 microns (.3 micron with phase contrast) and identifies the cell size distribution and culture count for process control. In many cells the cell viability is determined since a count of the ratio of live to dead cells is calculated by way of the cell structure that the image calculates.

**Perfusion**

- Cell Culture Information
- CIP
- Monitor for TOC and Particle level
- Reduce Lab Time

**Chromatography**

- Bead Size Verification
- Free From Bubbles

**Batch Fermentation**

- Measures Cell Size / Distribution / Count
- Visual Verification

**WFI**

- Continual Monitoring of Particulate Level
- Longer Campaigns

**Ultrafiltration & Centrifuge**

- Whole/Rupture Cell Breakthrough detection
- Free from bubbles

**CantyScoPe™**

- Seed Count
- PPV
- Crystal Growth

**CantyCrystalscoPe™ Advantages**

- Real-time crystal size analysis
- Crystal distribution by major, minor diameter, area, perimeter, aspect ratio, circularity
- Crystal size & shape
- Crystal count
- Density of crystals
- Detection of seeding problems
- Automated temperature & vacuum controls during crystal growth
- Increased efficiency during filtration

**CantyLab™**

- Monitoring and control of crystallization with on-line and real-time image processing.
- The Canty Lab CrystalscoPe™ is a process vessel with an integral particle analyzer. Sizes range from 1 liter to 500 liter. The analyzer uses the patented CANTY process microscope along with proven unique processing software to provide a complete analysis of size, shape and distribution. Seeding and seed agglomeration problems are easily detected. In addition, the polymorphs of the different crystals can be detected and measured.

**CantyQuickPort™**

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- Originally used in offshore diving industry.
- Can be used with no additional interlock.
- Meets ASME code section VIII for quick opening closures.
- Optional positive interlocks for hazardous or lethal service.

**QuickViewPort™**

- A safety opening closure for process vessels.
- Originally used in the offshore diving industry.
- Designed to meet ASME code section VIII.
- Can be used with no additional interlock.
- Meets all current safety and containment standards.

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CANTY Camera & Light Vision Systems

PILOT PLANT PRODUCTION TANKS

CANTY Camera & Light Vision Systems are a patented design to view and illuminate the inside of a pressure or process vessel through a single connection. There is no need for multiple ports! CANTY can supply an integrally mounted camera and light (optional) in flanged, sanitary or NPT threaded process connections. Analog or Ethernet CCD cameras provide a real time view inside the tank under process conditions. CANTY fused glass technology provides a safe, high pressure, high temperature, hermetically fused glass barrier between the process and the camera electronics.

The key to CANTY Camera & Light Vision Systems is the CANTY Light. CANTY uses fiber optic light guides to focus cool, effective light into a process or pressure vessel. Cool light eliminates product bake-on, adding no heat to the process. Fiber optic light guides deliver the maximum amount of light into the tank. The resulting live, remote image from a CANTY Camera & Light Vision System is unparalleled!

- Worldwide approvals
- Various models rated to 10,000 PSI [690 bar], temperatures to 200°F [1090°C].
- High resolution CCD cameras - Ethernet or analog output
- B&W or Color models
- Single nozzle viewing & illumination
- Ideal for pilot plants - view and record your process
- Remote light dimming options
- Optional Jet Spray Rings available

LEVEL CONTROL

- Non-contact level control
- Foam detection
- Verify empty
- Visual verification
- Conical Shaped Vessels
- Hemispherical Shaped Vessels

SPRAY DRYER

Black Spec detection can monitor for defects at the bottom of the spray dryer.

- Monitor Spray Patterns
- Detect Flugs
- Visual Verification
- Avoid a Fire

NUTSCHE FILTER

- Cake Detection
- Non-Contact Level Control
- Visual Verification
- Stop Washing Product Away
- Avoid Cracking Cake Layer

CENTRIFUGE LEVEL

- Thickness Control
- Level Control
- Verify Empty
- Visual Verification
- Color Detection

INTERFACE DETECTION

- Phase Split
- Control Rags Layer
- No False Readings
- Visual Verification
- Never Mix or Miss Phases

CANTY Industrial Surveillance Cameras & Telemetry Systems

ETHERNET

- TCP/IP Communication
- Simultaneously View Multiple Cameras
- Low Installation Cost - Uses Ethernet Cabling
- Available in Rugged Industrial Enclosures
- Windows® Compatible
- Point and Click Control
- 1600 x 1200, 640 X 480, 320 x 240, 160 x 120 Image Sizes
- Optional Video Recording Software – Burn To CD, DVD
- Archive to PC Hard Drive
- Simultaneously View Multiple Cameras
- TCP/IP Communication

TYPICAL INDUSTRIAL ETHERNET SURVEILLANCE CAMERA APPLICATIONS

- Vision based Belt Volume Flow and Measurement
- Hazardous Vapor Leak Detection

A CANTY Ethernet Industrial Surveillance Camera provides both remote viewing over an Ethernet network and a non-contact belt volume flow measurement using CANTYVisionClient™ software, supplied at no charge with each Ethernet camera.

- End View Of Conveyor
- Digitized Image - Measure Belt Volume, Flow
- Continueously monitor for presence of explosive vapors, leaks and alarm if they occur.

CANTYNET™ Software Available -

- Archive to PC Hard Drive
- TCP/IP Communication
- Burn To CD, DVD
- Available in the same rugged enclosures and enclosure options
- Optional Cooling Tube For High Temperature - On Site

Typical Industrial Ethernet Surveillance Camera Applications

- Pan & Tilt With Surveillance Camera
- Analog Output Models Also Available

www.canty.com 716.625.4337  Europe: +353 01 882.9621

Europe: +353 01 882.9621
CANTY High Temperature Cameras

High Temperature Cameras are ideal for demanding applications involving visual inspection or verification in extreme temperature environments. CANTY High Temperature Camera Systems feature a fused glass seal that is standard equipment with every model. This unique seal provides an impervious safety barrier to protect the camera electronics from the harsh process environment and prevents hazardous vapors from escaping into your plant.

**ULTRAtemp™ Insertion High Temperature Cameras**

- No cooling air required. Air is used for cleaning only
- 2000°F [1090°C] or 2500°F [1370°C] models
- High temperature furnace package
- 12”-36” insertion length models available to insert through refractory wall
- High quality quartz optics
- Disposable, protective quartz shield
- Auto electronic iris
- Non-blooming CCD camera - analog or Ethernet

**EXTremeTemp™ Glass Furnace Cameras**

Designed for the extreme 3000°F [1650°C] max. temperature requirements of glass furnaces, the Extremetemp™ Glass Furnace Camera combines a CANTY UltraTemp™ Camera with an Inconel sleeved high temperature refractory jacket. The assembly is inserted thru an opening in the fire brick, providing a remote view into the furnace.

- 3000°F [1650°C] max. rating - extreme temperature furnace lens
- High quality quartz optics
- Auto electronic iris
- Disposable quartz protective shield
- Non-blooming CCD or Ethernet cameras
- Cooling air required

**UltraTemp™ Flush Mount High Temperature Cameras**

- Ideal for applications where combined refractory and nozzle length are < 4” [102mm]
- 2000°F [1090°C] process temperature / 1300°F [700°C] at lens
- 3” 150# ANSI or 80 mm 16 bar DIN flange mounting options
- Includes protective quartz shield and spray ring assembly

**HiGHTEMP™ Surveillance Cameras**

- View and measure process attributes with high accuracy
- Remotely mounted - direct line of sight
- Ambient temperatures to 200°F [90°C]
- Ethernet connectivity
- Includes high temperature insulation and glare filters
- Optional mounting stands available

**MInTEMP™ High Temperature Cameras**

Mintemp™ cameras are low cost, low maintenance, portable alternatives to traditional high temperature cameras. Our unique design allows the unit to be easily moved from one location to the next in just minutes. They can be configured to fit any insertion length requirement.

Mintemp™ cameras depend upon an uninterrupted air stream to maintain integrity. If air is lost, the internal CCD camera and lens may require replacement. However, the remaining components will remain fully functional.

**Waste/Energy Incineration, Thermal Oxidizers, Kilns: Cement, Lime, Iron Ore**

CANTY provides real time measurement of bed level to maintain a proper energy balance as well as temperature control.

**Glass Industry**

- Monitor/verify flame presence and measure temperature with a CANTY ThermalVision™ camera system.

**Molten Metal**

- Monitor molten level, temperature, and slag detection

**Rotary Kiln**

- Tube temperature

**Refrigeration**

- Monitor/verify flame presence and measure temperature

**Software**

- CANTyVision™ software provides a real time measurement.

**Camera Systems**

- CANTY provides continuous temperature measurement by using multiband wavelength imaging pyrometry. With the advancement of CCD technology, multiband measurement has several advantages over 2 color (2 wavelength) pyrometers:
  - Product temperature measurement is integrated over a broader range of wavelengths, which minimizes variance in emissivity.
  - VIS (Visible spectrum) between 4 - 7 micron allows a wide range of materials to be measured without recalibration or adjustment to emissivity.

Calibration is performed to ASTM standard, providing for accuracy and repeatability of ±1°C.

**Thermal Vision**

- With the use of VIS, NIR and IR wavelengths, the proper ThermalVision™ Camera can be selected to provide the most accurate temperature measurement range available. CANTyVision™ software provides a SMART temperature measurement in addition to molten level tracking, object position and temperature measurement specific to an object or process.

**Canty**

- Provides continuous temperature measurement by using VIS, NIR and IR wavelengths.

**Multiband Wavelength Imaging Pyrometry**

- CANTY provides continuous temperature measurement by using VIS, NIR and IR wavelengths.

**Canty Vision Client**

- Rotating kiln

**ThermalVision™ System Applications**

- Monitor/verify flame presence and measure temperature with a CANTY ThermalVision™ camera system.

**Actual VIS ThermalVision™ Camera measuring rod temperatures 750°F [400°C] - 2865°F [1575°C]**

**Table**

<table>
<thead>
<tr>
<th>Spectrum</th>
<th>Temperature Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIS</td>
<td>750°F [400°C] to 3630°F [2000°C]</td>
</tr>
<tr>
<td>NIR</td>
<td>570°F [300°C] to 1830°F [1000°C]</td>
</tr>
<tr>
<td>IR</td>
<td>370°F [200°C] to 750°F [400°C]</td>
</tr>
</tbody>
</table>

*For Reference Only*
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EXTREMEtemp™ GLASS FURNACE CAMERAS

Designed for the extreme 3000°F [1650°C] max. temperature requirements of glass furnaces, the ExtremeTemp™ Glass Furnace Camera combines a CANTY UltraTemp™ Camera with an Inconel sleeved high temperature refractory jacket. The assembly is inserted thru an opening in the fire brick, providing a remote view into the furnace.

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- Auto electronic iris
- Disposable quartz protective shield
- Non-blooming CCD or Ethernet cameras
- Cooling air required

ULTRAtemp™ FLUSH MOUNT HIGH TEMPERATURE CAMERAS

- Ideal for applications where combined refractory and nozzle length are < 4” [102mm]
- 2000°F [1090°C] process temperature / 1300°F [700°C] at lens
- 3” [76mm] ANSI or 80 mm 16 bar DIN flange mounting options
- Includes protective quartz shield and spray ring assembly

HIGHTemp™ SURVEILLANCE CAMERAS

- View and measure process attributes with high accuracy
- Remotely mounted - direct line of sight
- Ambient temperatures to 200°F [90°C]
- Ethernet connectivity
- Includes high temperature insulation and glare filters
- Optional mounting stands available

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CANTY Camera & Light Vision Systems

**Pilot Plant Production Tanks**

CANTY Camera & Light Vision Systems are a patented design to view and illuminate the inside of a pressure or process vessel through a single connection. There is no need for multiple ports! CANTY can supply an integrally mounted camera and light (optional) in flanged, sanitary or NPT threaded process connections. Analog or Ethernet CCD cameras provide a real time view inside the tank under process conditions. CANTY fused glass technology provides a safe, high pressure, high temperature, hermetically fused glass barrier between the process and the camera electronics.

The key to CANTY Camera & Light Vision Systems is the CANTY Light. CANTY uses fiber optic light guides to focus cool, effective light into a process or pressure vessel. Cool light eliminates product bake-on, adding no heat to the process. Fiber optic light guides deliver the maximum amount of light into the tank. The resulting live, remote image from a CANTY Camera & Light Vision System is unparalleled!

- Worldwide approvals
- Various models rated to 10,000 PSI [690 bar], temperatures to 2000°F [1090°C].
- High resolution CCD cameras - Ethernet or analog output
- B&W or Color models
- Single nozzle viewing & illumination
- Ideal for pilot plants - view and record your process
- Remotely view process from the comforts of a control room
- Remote light dimming options
- Optional Jet Spray Rings available

**Level Control**

- Non-contact level control
- Foam detection
- Ventify empty
- Visual verification
- Conical shaped vessels
- Hemispherical shaped vessels

**Foam Detection**

- NON-CONTACT Foam control
- Plastic & resins
- Percent Foam
- Ventify empty
- Conical shaped vessels
- Hemispherical shaped vessels

**Nut Shoe Filter**

Black speck detection can monitor for defects at the bottom of the spray dryer.

**Spray Dryer**

- Nourisher viewing
- Nut shoe detection particle size analysis
- View for defects in spray dryer
- Avoid a fire

**Centrifuge Level**

- Thickness Control
- Level Control
- Verify Empty
- Visual Verification
- Color Detection

**Interface Detection**

- Phase Split
- Control failed layer
- No False Readings
- Visual Verification
- Never Mix or Miss Phases

**Conveyor Feed Control**

- Conical shaped vessels
- Verify empty
- Plastic & resins
- Non-contact foam control
- Visual verification
- Cake detection
- Stop washing product away
- Avoid cracking cake layer

**Canty Vision Client™ software**

- Supply at no charge with each Ethernet camera.
- CantyVisionClient™ software, supplied at no charge with each Ethernet camera.
- Typical industrial Ethernet surveillance camera applications
- Vision based belt volume flow and measurement
- Hazardous vapor leak detection

**CANTYNET™**

- 15 fps typical
- Sequentially view up to 40 cameras per dedicated network segment
- Simultaneously view 4 cameras on 100 Mbps network segment
- TCP/IP communication

**EtherCAT or Analog CCD Camera**

- RJ-45 Terminations
- Power to 120V AC (US) or 230V AC (Europe)
- Customer’s network hub
- Optional video recording
- Point and click control
- Windows® 95/98/NT/2000/XP compatible

**Viewing Window**

- Normal operation
- Alarm condition
- Optional Insulation Jacket
- Optional cooling tube
- High quality optical lenses

**Conveyor & Chute Plug Control**

- End view of conveyor
- View for leaks and alarm if they occur.
- Optional Insulation Jacket
- Optional cooling tube
- High quality optical lenses
- Visual verification
- Cake detection
- Stop washing product away
- Avoid cracking cake layer

**CANTY Ethernet Surveillance Camera**

- Ethernet or analog CCD camera
- Option for remote viewing
- Real time level measurement and cake detection
- Digitized image for measure belt volume, flow
- Digitized image - measure belt volume, flow

**CANTY Camera & Light Vision Systems**

- Wired output models also available
- Analog output models also available
- Optional video recording
- Point and click control
- Windows® 95/98/NT/2000/XP compatible
- Archive to PC hard drive
- Available in Rugged industrial enclosures
- Worldwide approvals
CANTY QuickPort™ Closures

The CANTY QuickPort™ is a patented, safe, quick opening closure for process vessels. Originally used in the offshore diving industry as a transfer lock on decompression chambers, QuickPort™ are used with no additional interlock by the tank to be pressurized or evacuated. A pressure differential holds the door securely in place and no bolting is involved. Meets ASME code section VIII for quick opening closures. Optional positive interlocks for hazardous or lethal service are available.

The QuickPort™ features a hinged door or window that opens laterally to provide full port access. The closure consists of a pad and a retaining flange held apart by spacers, a floating seal ring and a door or sight glass. As the door is pivoted into the closure the spring loaded seal ring is deflected back to allow the door or sight glass to fit tightly between the flanges. The spring force creates an air tight seal on the door face and allows the tank to be pressurized or evacuated.

QuickPort™ Applications

- Powder Charging
- Sampling
- Pilot Plant Vessels
- Air Cylinder Locking Pin
- Spring Loaded Locking Pin
- Interlock Available For Hazardous Operations
- Not Needed For Pressure Safety
- Limit Switch
- Fuel Ring = Prevents Spillage
- Sprayball = No Additional Nozzle Needed
- Glove Bag
- Funnel = Clamp-On or Drop In
- Vessel Charging with DEG PTS System

QuickPort™ Hazop Options

- Limit Switch
- Interlock Available For Hazardous Operations
- Not Needed For Pressure Safety
- Air Cylinder Locking Pin
- Sprayball = No Additional Nozzle Needed
- Funnel = Clamp-On or Drop In

HOW IT WORKS!

The zero leak design has been proven through a combination of air / liquid submergence testing. This cycles the QuickPort™ through external pressure, no pressure and ultra high internal pressure leak testing where a constant o-ring seal is maintained.

CANTY PARTICLE SIZING

Fermentation

Canty dynamic image processing performs several valuable functions in fermentation. The system captures images for cells down to .7 microns (.3 micron with phase contrast) and identifies the cell size distribution and culture count for process control. In many cells the cell viability is determined since a count of the ratio of live to dead cells is calculated by way of the cell structure that the image calculates.

- Cell Culture Information
- CIP
- Monitor for TOC and Particle Level
- Reduce Lab Time

Chromatography

- Bead Size Verification
- Free From Bubbles
- Measures Cell Size / Distribution / Count
- Visual Verification

WFI

- Continued Monitoring of Particulate Level
- Longer Campaigns

Ultrafiltration & Centrifuge

- Whole/Rupture Cell Breakthrough detection
- Free from bubbles
- Measures Cell Size / Distribution by major, minor diameter, area, perimeter, aspect ratio, circularity
- Crystal size & shape
- Crystal count
- Density of crystals
- Detection of seeding problems
- Automated temperature & vacuum controls during crystal growth
- Increased efficiency during filtration
- Real-time crystal size analysis
- Crystal distribution by major diameter, area, perimeter, aspect ratio, circularity
- Crystal size & shape
- Crystal count
- Density of crystals
- Detection of seeding problems
- Automated temperature & vacuum controls during crystal growth
- Increased efficiency during filtration

CrystalScopes™ Reactor Top Mounted

- Seed Count
- PPM
- Crystal Growth

Dynamic imaging processing is the only method of providing cell and crystal sizing, shape, color and viability in the lab and online in the process. There are several areas in fermentation and Bio-processing where online and PAT applications have been successfully implemented.

CrystalScopes™ Reactor Side Mounted

- Mammalian Cells

CrystalScopes™ Glass Reactor

- Chromatography Beads

CrystalScopes™ Lab Reactor

- Seeding
- Growth
- Crystals

CrystalscoPe™ Advantages

- Real-time crystal size analysis
- Crystal distribution by major diameter, area, perimeter, aspect ratio, circularity
- Crystal size & shape
- Crystal count
- Density of crystals
- Detection of seeding problems
- Automated temperature & vacuum controls during crystal growth
- Increased efficiency during filtration

The CANTY Lab CrystalScopes™ is a process vessel with an integral particle analyzer. Sizes range from 1 liter to 500 liter. The analyzer uses the patented CANTY process microscope along with proven unique processing software to provide a complete analysis of size, shape and distribution. Seeding and seed agglomeration problems are easily detected. In addition, the polymorphs of the different crystals can be detected and measured.
CANTY

Liquid Analysis
Particle Size - Slurries - Suspensions

CANTY offers many systems for laboratory particle sizing analysis that have been engineered to provide the user a means by which a liquid is analyzed while under varying pressures, temperatures and flow rates. The MicroFlow™, MacroFlow™ and the LiquidCrystal™ offer sample or continuous, microscopic, non-destructive viewing. They provide particle size analysis on 1 micron and larger samples with two dimensional results when used in conjunction with CoreVisionCore™ software.

MicroFlow™
• Variable magnification lens for analysis of different size samples
• A high output light source with uniform light field to display silhouette images of opaque particles and translucent particles.

MicroFlow™ with Pressure Pots
• FusionView™ window is the product contact barrier
• Rated 150 PSI [10 bar] @ 500°F [260°C], Options through 6,000 PSI [400 bar]
• On-Line or LabPlus™ (remote control)

MacroFlow™
• Variable fluid gap spacing to obtain optimal image for particle sizing
• Ability to view real-time data and images
• Store and recall images for further analysis

IMMERSION TURBIDITY ANALYZER
System Capability:
• Particle Size
• Turbidity
• Percent Solids

Applications:
• Hydrocyclers
• Transfer boxes
• Floatation tanks

CANTY InFlow™ Particle Sizing
Ink Toner Image from MicroFlow™

CANTY offers sample or continuous, microscopic, non-destructive viewing. They provide particle size analysis on 1 micron and larger samples with two dimensional results when used in conjunction with CoreVisionCore™ software.

CANTY FuseView™ sanitarian Fusiview™ sight glasses are fused, one-piece sight glasses, featuring a hermetic fused glass to metal seal. The CANTY high pressure, fused glass design requires no special gasketing or torque requirement. CANTY sanitary sight glasses have been designed and tested to ensure the safest product available.

CANTY can provide certification of material and testing if required, following ASME code and TUV requirements for process seals.

Tri-Clamp® FuseView™
Tri-Clamp® FusionView™ sight glasses are available in full view and flush mount styles. The hermetic, sanitary design is ideal for sanitary applications. CANTY features the largest viewing area of any fused sight glass on the market today.

Aseptic NA-Connect® FuseView™
Aseptic NA-Connect® FusionView™ sight glasses are designed for sanitary, CIP/SIP applications. The sanitary design eliminates air pockets and trapped material and is designed for full torquing. They cannot be over-torqued.

SANITARY FLANGE FuseView™
Sanitary flange FusionView™ sight glasses incorporate a thin hole bolt pattern in the sight glass, eliminating the need for a retainer flange. The low profile design and hermetic, fused seal provide a high strength, sanitary sight glass free of air pockets or pockets for material accumulation.

CANTY SANITARY SIGHT FLOWS
CANTY sanitary sight flows are designed with the same attention to safety as industrial units. They are available with Tri-Clamp®, butt weld, TS, or any available sanitary connection.

CANTY SANITARY JET SPRAY RINGS

HOW IT WORKS!
To manufacture a FusionView™ we heat the glass to its molten point where it flows to the wall of the metal. At that point the glass fuses or bonds to the metal. Then we slowly cool the FusionView™ until the glass solidifies. The metal has a higher coefficient of expansion than the glass and the metal compresses on the glass. This squeezing prestresses the glass and puts it under radial compression. Glass is strong in compression but not in tension or shear. When the FusionView™ is pressurized the glass bends and relieves the compression and avoids tension. This is the same as is done in concrete - it is prestressed in compression in order to take bending.

THE CANTY ADVANTAGE

CONCENTRATION MEASUREMENT
Concentration down to the PPM/PPB level is accomplished by digitally analyzing the size and shape of the droplets or particles to calculate the volume.

Concentration Measurement

To manufacture a FusionView™ we heat the glass to its molten point where it flows to the wall of the metal. At that point the glass fuses or bonds to the metal. Then we slowly cool the FusionView™ until the glass solidifies. The metal has a higher coefficient of expansion than the glass and the metal compresses on the glass. This squeezing prestresses the glass and puts it under radial compression. Glass is strong in compression but not in tension or shear. When the FusionView™ is pressurized the glass bends and relieves the compression and avoids tension. This is the same as is done in concrete - it is prestressed in compression in order to take bending.

Note - glass is still fused to the ring after cutting. (Comparable models shown cut with band saw)
JET SPRAY RINGS

CANTY FuseView™

**Industrial Sight Glasses and Sight Flows**

**THE ENGINEERED ADVANTAGE**

CANTY FuseView™ sight glasses have been engineered to meet all of your process and safety needs. All standard FuseView™ feature Factory Mutual approval and are designed and tested to ensure the safest product available. CANTY can provide certification of material and testing if required, following ASME code and TUV requirements for process vessels.

Our unique fused glass windows far exceed all conventional tempered glass windows in safety and performance. CANTY windows can be easily removed for cleaning and do not have to be discarded as do traditional tempered sight glass windows.

**FUSEVIEW™ ANSI / DIN**

CANTY FuseView™ flanged sight glasses are ideal for new or retrofit applications and are available in ANSI and DIN as well as almost any custom size. FuseView™ models feature the largest viewing area of any fused sight glass on the market today.

**FUSEVIEW™ HIGH TEMP**

CANTY FuseView™ High Temp sight glasses include dual FuseView™ sight glasses for extreme high temperature applications. The dual sight glass package insulates the inner FuseView™ sight glass against extreme thermal shock.

**GLASS WETTED FUSEVIEW™**

Glass wetted FuseView™ sight glasses are designed for glass-lined reactors where only glass is allowed in contact with the product. The large diameter fused glass seal allows the gasket to seal on glass only, not the metal. Perfect for glass wetted, C2000 and exotic material reactors.

**QUARTZ / SAPPHIRE SHIELD FOR FUSEVIEW™**

CANTY quartz or sapphire shields can be added to any FuseView™ ANSI / DIN sight glass for caustic service. Replaceable molecular quartz or sapphire shields are available when required due to process conditions.

**CANTY SIGHT FLOWS**

All CANTY sight flows come standard with FuseView™ sight glasses to provide the safest sight flow in the industry. Our sight flows have been designed to meet strict ASME code requirements and all units are hydro-tested to 150% of the maximum rated pressure.

**FUSED GLASS ADVANTAGE**

All CANTY sight flows feature FuseView™ sight glasses to ensure safety. By fusing glass to metal, a high pressure, high safety and high impact hermetic seal is formed.

**MODELS**

- Flanged
- Threaded
- Welded
- Tri-Clamp™
- Teflon® Lined

**Fuel Analysis**

CANTY fuel analysis provides detection of solids, water, and FAME (bio-particle) as well as color and haze.

**Refining Desalter**

Oil in Water analysis is measured to the ppm level with the addition of droplet size. WATER in OIL (BSW) analysis in a pipeline of crude and detection of water slug helps in process control and custody transfer. COLOR analysis of JET FUEL along with particle and water is a critical quality measurement during distillation and transfer. OIL in WATER in the steam condensate hurts energy efficiency. OIL in WATER in waste treatment helps meet the EPA guidelines.

**Explosion Proof / Flame Proof**

At-line and inline systems are the best solution for process control. The high resolution Canty optics, down to 7 microns, allow MFT (manufactured fine tailings) to be analyzed, distinguishing the solid particles from the liquid droplets.

**LAB/PORTABLE ANALYZER**

- Provides both a real-time, in-line and in-line systems for the best solution for process control.
- Particles in the system to help control them.

**JET SPRAY RINGS**

CANTY Jet Spray Rings generate a high pressure vortex rising action to remove tough deposits from sight glasses, lights, and vision systems. The Jet Spray Ring may be used for constant or instantaneous cleaning.

**COATED VIEW**

**CLEAR VIEW**

**INFLOW**

**IN-LINE ANALYZER**

**AT-LINE ANALYZER**

**LAB/PORTABLE ANALYZER**

**FUEL**

- Analysis of color, SOLID/PARTICULATE, and WATER is a critical measurement in several areas ranging from the refinery FUEL to pipeline and product coloring.

**WATER in OIL**

- Analysis of FAME, OIL in WATER, OIL in WATER/BSW, COLOR, ASPHALTENES, WAX.

**Lube Oil**

- Measurement of soot, solids and water provides valuable information on the health of heavy mechanical equipment allowing for detection of changes which would quickly indicate a problem.

**Produced Water**

- Measurement of OIL, SAND, and GAS BUBBLES provides the multi-phase analysis that is needed to reliably control the separator on and minimize chemical use. Inline imaging is the ideal way to measure oil in water since UV and IR measurement can be erroneous due to the chemical addition.

**Sands**

- Heavy crude are ideal applications to measure water and solids due to the demanding pressures and temperatures of the slurry. BSW/WATER measurement in crude oil is critical for custody transfer and process control. Canty provides PPM concentration of each component as well as particle distribution. Hydrates and WAX are detected and sized in the system to help control them.
CANTY Laboratory SoudSizer™ are vision-based analyzers for dry particle size measurement and speck detection in a laboratory environment. The SoudSizer™ includes a camera with shutter speed control, a variable magnification lens, a high output light source with a uniform light field to display silhouette images of opaque particles and an enclosed vibratory feeder to present sample material to the camera / light in free fall. The sample images are digitally analyzed to obtain particle characteristics.

The SoudSizer™ TS is a fully automated particle characteristic analyzer and is ideal for any laboratory application.

The SoudSizer™ T5 is a fully automated, particle characteristic and color analyzer. All functions are computer controlled, with an easy to use, comprehensive analysis and control software package. The SoudSizer™ T5 is ideal for any laboratory application.

The Lab Colorimeter Saybolt, (R, CL), CIE Options

- Save Images
- Visual Verification
- No Constant Recalibrating
- Canty White Light

An excellent laboratory color analyzer, the Lab Colorimeter provides manual control of all parameters required to accurately and repeatedly measure color characteristics.

The LabPlus Solidsizer™ is a fully automated particle, color analysis and speck detection system. The LabPlus Solidsizer™ combines the maximum viewing area through a Canty optic light, the high output sanitary Canty light, providing the best view possible while minimizing space needed and number of connections.

The LabPlus Hinged Sanitary Light and Sight Glass System combines the PueVis™ with a unique hinged connection which allows the user to easily and quickly unclamp and pivot the sight glass and light combination away from the sample in just seconds. The LabPlus™ system remains supported by the female and can quickly pivot back into place.

The LabPlus Hinged Sanitary Light and Sight Glass System includes additional vision module for color analysis, speck detection.

CANTY PARTICLE SIZING AND SPECK DETECTION

PARTICLE, COLOR ANALYSIS AND SPECK DETECTION

CANTY COLD LIGHT

HYL 52 Lighting System

1 HOUR BAKE-ON TEST

CANTY SOLAR VIEW

30˚ NORMAL BEAM

90˚ WIDE BEAM

ELLIPICAL BULB / REFLECTOR

IN FILTER

FIBER OPTIC LIGHT PIPE

Cany lights feature a high output halogen bulb and reflector assembly that focuses the light from the bulb into the process vessel or tank. An infra-red filter is used to remove all heat from the light, providing only cool light into the process and eliminating sight glass bake-on. Conical light output of 30˚ (normal beam) or 90˚ (wide beam) are available.

APPLIED TO

® is a fully automated particle

characteristic analyzer. All functions are computer controlled, with an

easy to use, comprehensive analysis and control software package.

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The LabPlus Hinged Sanitary Light and Sight Glass System combines the PueVis™ with a unique hinged connection which allows the user to easily and quickly unclamp and pivot the sight glass and light combination away from the sample in just seconds. The LabPlus™ system remains supported by the female and can quickly pivot back into place.

The CANTY PueVis™ is a sanitary / hygienic fiber optic light and fused sight glass combination. The PueVis™ combines the maximum viewing area through a Canty FocVis™ sanitary sight glass with a high output sanitary Canty light, providing the best view possible while minimizing space needed and number of connections.

The LabPlus Hinged Sanitary Light and Sight Glass System combines the PueVis™ with a unique hinged connection which allows the user to easily and quickly unclamp and pivot the sight glass and light combination away from the sample in just seconds. The LabPlus™ system remains supported by the female and can quickly pivot back into place.
FIBER OPTIC BUNDLE LIGHTING

CANTY provides a combined light and sight glass to optimize viewing and minimize total package cost. Illuminate through an existing sight glass or a newly installed FuseView™.

CANTY 24" and longer bundle models mount remotely from the sight glass with an optional bracket for increased accessibility. Illustration above includes optional CANTY QuickFillView Port™.

- High Intensity Lighting
- NEMA 4, IP66, Explosion proof, Flame proof models
- Fused glass seal provides a safe, reliable, hermetic seal between electronics and the process area.

CANTY LIGHT BEAM OPTIONS:
30° Normal Beam
90° Wide Beam

CANTY 12" bundle models mount directly to a sight glass with an optional bracket.

- View and illuminate through one nozzle
- Maximum illumination
- Cool light output - eliminates product bake-on
- 50W & 80W models

APPLICATIONS
- Process vessels
- Solid material hoppers
- Spray dryers
- Sterilizers
- Filters
- Crystallizers
- Centrifuges

OPTIMUM VIEWING

CANTY H1T lighting systems are designed to illuminate for optimal viewing. Our patented design transmits an intense beam of light into a process or pressure vessel. Conical light beam options of 30° (normal beam) or 90° (wide beam) are available.

INDUSTRIAL SIZER™
10 microns - 30 mm options
- WP, IP, Explosion Proof or Flame Proof Environments

SolidSizer™ Applications
- Food - Coffee, Cereals, Candies
- Detergents
- Pharmaceutical - Powders, Capsules
- Mining - Aggregates, Crusher Control
- Iron Ore Pellets
- Wood chips
- Plastics
- Agricultural Products
- Many, Many More!

FOOD
On-Line & Lab

System Capability
- Particle Size
- Color and Size
- Volume Flow
- Automate Your Process
- Visual Verification

Applications
- Coffee
- Sugar
- Potato Chips
- Candy
- Chocolate
- Powders

FOOD System Capability
- Dissolution Particle Size/Time
- Color and Shape
- Turbidity and Percent Solids
- Oil in Water
- Water in Oil
- FOG Monitor
- Independent of Bubbles
- Automate Your Process
- Visual Verification

INDUSTRIAL SIZER™
2.5 mm - 230 mm Options
- For Aggregate Applications
- WP, IP, Explosion Proof or Flame Proof Environments

The RockSizer™ Advantages:
- Designed to withstand the harsh environments typical of the mining industry
- Rugged, skid mount style frame
- 3D particle size and shape analysis
- Real-time, On-line particle size analysis
- Dual uniform backlighting for true shape illumination
- Easy, rapid system configuration

BEVERAGE
On-Line & Lab

Applications
- Coffee
- Liquid Sugar
- Oil Cooking
- Gels or Pastes
- Creams
- Energy Drinks
- Beer/Spirits/Wine
- Milk

3-D RockSizer™
2.5 mm - 230 mm Options
- WP, IP, Explosion Proof or Flame Proof Environments

The RockSizer™ Advantages:
- Designed to withstand the harsh environments typical of the mining industry
- Rugged, skid mount style frame
- 3D particle size and shape analysis
- Real-time, On-line particle size analysis
- Dual uniform backlighting for true shape illumination
- Easy, rapid system configuration
CANTY’S GOAL IS TO PROVIDE EQUIPMENT TO ENHANCE PROCESS CONTROL AND YIELD. WE ACCOMPLISH THIS BY DESIGNING, MANUFACTURING AND SERVICING THE FINEST EQUIPMENT IN THE WORLD.

Some Of Our Valued Customers

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<tr>
<th>J.M. Canty Inc.</th>
<th>Dow</th>
<th>Dupont</th>
<th>Eastman Chemical</th>
<th>Eli Lilly</th>
<th>ExxonMobil</th>
<th>Fresenius</th>
<th>Freeman-Morgan</th>
<th>Fluor</th>
<th>GlaxoSmithKline</th>
<th>Goodyear</th>
<th>Honeywell</th>
<th>Huntsman</th>
<th>International Paper</th>
<th>Jacobs Engineering</th>
<th>Johnson &amp; Johnson</th>
<th>Kraft</th>
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<td>J.M. Canty International Ltd.</td>
<td>Lonza</td>
<td>Merck</td>
<td>National Starch</td>
<td>Nestle</td>
<td>Niro</td>
<td>Novartis</td>
<td>Nucor Steel</td>
<td>Owens Illinois</td>
<td>Pfizer</td>
<td>Procter &amp; Gamble</td>
<td>ROCHE</td>
<td>Safes Kiban</td>
<td>Sanoh Aventis</td>
<td>Syncrude</td>
<td>US Steel</td>
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Industries

- ABRASIVES
- AEROSPACE
- AGRICULTURE
- BIOFUELS AND SYNTHETIC FUELS
- BIOTECHNOLOGY
- CEMENT
- CERAMICS
- CHEMICAL
- FOOD, BEVERAGE AND BREWERY
- GLASS
- MINING
- OIL, GAS AND COAL
- PETROLEUM AND PETROCHEMICAL
- PHARMACEUTICAL
- PULP AND PAPER
- STEEL AND METALS
- STONES AND AGGREGATE
- WATER AND WASTE

AND YOU!!!

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